

Claims

1. A method of operating a computer system having one or more program classes loaded therein, said method comprising the steps of:

providing a constant pool for storing data items related to a program class;

performing a resolution on at least some of the data items in the constant pool, said resolution transforming a data item from an unresolved value as loaded to a resolved value such that the data item can be utilised by a program; and

maintaining both the unresolved value and the resolved value in the constant pool entry for a resolved data item.

2. The method of claim 1, further comprising the step of setting a resolution flag for a data item after that data item has been resolved.

3. The method of claim 1, wherein the step of performing a resolution for a data item comprises the steps of:

retrieving the unresolved value of the data item;

determining the resolved value of the data item; and

writing the resolved value of the data item into the constant pool, whilst still maintaining the unresolved value of the data item in the constant pool.

4. The method of claim 3, wherein the steps of retrieving, determining and writing are performed without locking the constant pool or any component thereof.

5. The method of claim 3, wherein the step of performing a resolution for a data item further comprises the step of setting a resolution flag for a data item after the resolved value of that data item has been written into the constant pool.

6. The method of claim 2, wherein a data item within a constant pool has as its unresolved value an index to the name of a class, and said method further comprises the step of always accessing said unresolved value to obtain the class name, irrespective of whether said resolution flag has been set.

7. The method of claim 1, wherein said program classes are loaded into a Java virtual machine which includes said constant pool.

8. The method of claim 7, wherein the computer system supports a configuration of shared Java virtual machines, such that data items in the constant pool in one Java virtual machine can be resolved in response to processing in another Java virtual machine.

9. A computer system having one or more program classes loaded therein, and further comprising:

a constant pool for storing data items related to a program class;

means for performing a resolution on at least some of the data items in the constant pool, said resolution transforming a data item from an unresolved value as loaded

to a resolved value such that the data item can be utilised by a program;

wherein said constant pool includes fields for maintaining both the unresolved value and the resolved value in the constant pool entry for a resolved data item.

10. The system of claim 9, wherein the constant pool further includes a resolution flag for each data item, wherein said flag is set after that data item has been resolved.

11. The system of claim 9, wherein the means for performing a resolution for a data item comprises:

means for retrieving the unresolved value of the data item;

means for determining the resolved value of the data item; and

means for writing the resolved value of the data item into the constant pool, whilst still maintaining the unresolved value of the data item in the constant pool.

12. The system of claim 11, wherein the retrieving, determining and writing are performed without locking the constant pool or any component thereof.

13. The system of claim 11, wherein the means for performing a resolution for a data item further comprises means for setting a resolution flag for a data item after the resolved value of that data item has been written into the constant pool.

14. The system of claim 10, wherein a data item within a constant pool has as its unresolved value an index to the name of a class, and said system further includes means for accessing said unresolved value to obtain the class name, irrespective of whether said resolution flag has been set.

15. The system of claim 9, wherein said program classes are loaded into a Java virtual machine which includes said constant pool.

16. The system of claim 15, wherein the computer system supports a configuration of shared Java virtual machines, such that data items in the constant pool in one Java virtual machine can be resolved in response to processing in another Java virtual machine.

17. A computer program product comprising program instructions on a medium which when loaded into a computer system having one or more program classes loaded therein will cause the computer to perform a method comprising the steps of:

    providing a constant pool for storing data items related to a program class;

    performing a resolution on at least some of the data items in the constant pool, said resolution transforming a data item from an unresolved value as loaded to a resolved value such that the data item can be utilised by a program; and

    maintaining both the unresolved value and the resolved

value in the constant pool entry for a resolved data item.

18. The computer program product of claim 17, wherein the program instructions further cause the computer to perform the step of setting a resolution flag for a data item after that data item has been resolved.

19. The computer program product of claim 17, wherein the step of performing a resolution for a data item comprises the steps of:

- retrieving the unresolved value of the data item;
- determining the resolved value of the data item; and
- writing the resolved value of the data item into the constant pool, whilst still maintaining the unresolved value of the data item in the constant pool.

20. The computer program product of claim 19, wherein the steps of retrieving, determining and writing are performed without locking the constant pool or any component thereof.

21. The computer program product of claim 19, wherein the step of performing a resolution for a data item further comprises the step of setting a resolution flag for a data item after the resolved value of that data item has been written into the constant pool.

22. The computer program product of claim 18, wherein a data item within a constant pool has as its unresolved value an index to the name of a class, and said program instructions further cause the computer to perform the step of always accessing said unresolved value to obtain the

class name, irrespective of whether said resolution flag has been set.

23. The computer program product of claim 17, wherein said program classes are loaded into a Java virtual machine which includes said constant pool.

24. The computer program product of claim 23, wherein the computer system supports a configuration of shared Java virtual machines, such that data items in the constant pool in one Java virtual machine can be resolved in response to processing in another Java virtual machine.